REPORT
OF THE
COMMITTEE
ON THE PEACEFUL USES
OF OUTER SPACE

GENERAL ASSEMBLY

OFFICIAL RECORDS: FORTY-SIXTH SESSION

SUPPLEMENT No. 20 (A/46/20)

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CONTENTS

		Paragraphs	Page
I.	INTRODUCTION	1 - 18	1
II.	RECOMMENDATIONS AND DECISIONS	19 - 162	4
	A. Ways and means of maintaining outer space for peaceful purposes	19 - 26	4
	B. Report of the Scientific and Technical Subcommittee on the work of its twenty-eighth session	27 - 98	6
	Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space	27 - 98	6
	1. Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space	29 - 51	6
	2. Matters relating to remote sensing of the Earth by satellites, including, inter alia, applications for developing countries	52 - 58	11
	3. Use of nuclear power sources in outer space	59 - 65	12
	4. Space transportation systems	66 - 68	13
	5. Examination of the physical nature and technical attributes of the geostationary orbit; examination of its utilization and applications, including, inter alia, in the field of space communications, as well as other questions relating to space communications developments, taking particular account of the needs and interests of developing countries	69 - 72	13
	6. Matters relating to life sciences, including space medicine; progress in the geosphere-biosphere (global change) programme; matters relating to planetary exploration; matters relating to astronomy	73 - 75	14
	7. Themes fixed for special attention at the 1991 and 1992 sessions of the Scientific and Technical Subcommittee	76 - 81	14

CONTENTS (continued)

		Paragraphs	Page
	8. International Space Year	82 - 91	15
	9. Space and Earth environment	92 - 98	17
C.	Report of the Legal Subcommittee on the work of its thirtieth session	99 - 137	18
	1. The elaboration of draft principles relevant to the use of nuclear power sources in outer space, with the aim of finalizing the draft set of principles	101 - 115	18
	2. Matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union	116 - 125	21
	3. Consideration of the legal aspects related to the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries	126 - 137	22
D.	Spin-off benefits of space technology: review of current status	138 - 147	23
E.	Other matters	148 - 149	25
F.	Future work	150 - 157	25
G.	Schedule of work of the Committee and its subsidiary bodies	158 - 160	26
H.	Tributes	161 - 162	27

CONTENTS (continued)

Page

Annexes

I. Statement by the Under-Secretary-General for Political and Security Council Affairs on behalf of the Secretary-General 28

II. Opening statement by the Federal Minister for Foreign Affairs of Austria 31

III. Statement by the Chairman of the Committee on the Peaceful Uses of Outer Space 33

IV. Report of the Legal Subcommittee on the work of its thirtieth session. The elaboration of draft principles relevant to the use of nuclear power sources in outer space, with the aim of finalizing the draft set of principles: working paper submitted by Canada and Germany under agenda item 8 44

I. INTRODUCTION

1. The Committee on the Peaceful Uses of Outer Space held its thirty-fourth session at Graz, Austria, from 27 May to 6 June 1991. The officers of the Committee were the following:

Chairman: Mr. Peter Hohenfellner (Austria)

Vice-Chairman: Mr. Aurel Dragos Munteanu (Romania)

Rapporteur: Mr. Flavio Miragaia Perri (Brazil)

The verbatim records of the Committee's meetings are contained in documents A/AC.105/PV.351-365.

Meetings of subsidiary bodies

2. The Scientific and Technical Subcommittee held its twenty-eighth session at United Nations Headquarters from 19 February to 1 March 1991 under the chairmanship of Mr. John H. Carver (Australia). The report of the Subcommittee was issued as document A/AC.105/483.

3. The Legal Subcommittee held its thirtieth session at United Nations Headquarters from 25 March to 12 April 1991 under the chairmanship of Mr. Václav Mikulka (Czechoslovakia). The report of the Subcommittee was issued as document A/AC.105/484. The summary records of the Subcommittee's meetings are contained in documents A/AC.105/C.2/SR.539-549.

4. At its opening meeting, the Committee adopted the following agenda:

1. Opening of the session.
2. Adoption of the agenda.
3. Statement by the Chairman.
4. Election of the new Chairman.
5. General exchange of views.
6. Ways and means of maintaining outer space for peaceful purposes.
7. Report of the Scientific and Technical Subcommittee on the work of its twenty-eighth session.
8. Report of the Legal Subcommittee on the work of its thirtieth session.
9. Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space.
10. Spin-off benefits of space technology: review of current status.

11. Other matters.

12. Report of the Committee to the General Assembly.

Membership and attendance

5. In accordance with General Assembly resolutions 1721 E (XVI) of 20 December 1961, 3182 (XXVIII) of 18 December 1973, 32/196 B of 20 December 1977 and 35/16 of 3 November 1980, and with decision 45/315 of 11 December 1990, the Committee on the Peaceful Uses of Outer Space was composed of the following Member States: Albania, Argentina, Australia, Austria, Belgium, Benin, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chad, Chile, China, Colombia, Czechoslovakia, Ecuador, Egypt, France, Germany, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kenya, Lebanon, Mexico, Mongolia, Morocco, Netherlands, Niger, Nigeria, Pakistan, Philippines, Poland, Portugal, Romania, Sierra Leone, Sudan, Sweden, Syrian Arab Republic, Turkey, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela, Viet Nam and Yugoslavia.

6. At its 351st and 356th meetings, the Committee decided to invite, at their request, the representatives of Greece, the Libyan Arab Jamahiriya, Malaysia, Peru, Spain, Thailand and the Holy See to attend the thirty-fourth session of the Committee and to address it, as appropriate, on the understanding that this would be without prejudice to further requests of this nature and that it would not involve any decision of the Committee concerning status.

7. Representatives of the United Nations Conference on Environment and Development (UNCED), the Office of the United Nations Disaster Relief Coordinator (UNDRO), the Food and Agriculture Organization of the United Nations (FAO) and the International Atomic Energy Agency (IAEA) also attended the session.

8. Representatives of the European Space Agency (ESA), the International Telecommunications Satellite Organization (INTELSAT), the Council on International Cooperation in the Study and Utilization of Outer Space (INTERCOSMOS), the Committee on Space Research (COSPAR) of the International Council of Scientific Unions (ICSU), the International Aeronautical Federation (IAF) and the International Law Association (ILA) also attended the session.

9. A list of representatives attending the session is contained in document A/AC.105/XXXIV/INF/1.

Commemoration

10. The Committee took note of the thirtieth anniversary of the first human space flight executed on 12 April 1961 by the Cosmonaut Yuri Gagarin of the USSR.

Proceedings

11. At the opening of the session, at the 351st meeting, the Under-Secretary-General for Political and Security Council Affairs made a

statement on behalf of the Secretary-General (annex I), and the Federal Minister for Foreign Affairs of Austria made an opening statement (annex II). The Mayor of the City of Graz, and the Governor of the State of Styria also made statements of welcome to the Committee.

12. At the 351st meeting, the Chairman of the Committee, in his final statement in that capacity, reviewed the achie ements of the Committee over the last 20 years and the highlights of space activities during the past year, summarized the work of the Committee's subsidiary bodies and outlined the work before the Committee. He called upon the Committee to continue its tradition of cooperation and consensus in strengthening international cooperation in the peaceful uses of outer space. The text of the Chairman's statement is annexed to the present report (annex III).

13. In his statement, Ambassador Peter Jankowitsch (Austria) announced that, as a result of having been appointed to a new post by his Government, he was unable to continue as Chairman of the Committee. The Committee, at its 351st meeting, elected Ambassador Peter Hohenfellner (Austria) as its new Chairman.

14. At the 352nd meeting, the Chief of the Outer Space Affairs Div sion of the Secretariat made a statement reviewing the work of the Division during the previous year.

15. At its 351st to 354th meetings, from 27 to 29 May 1991, the Committee held a general exchange of views, in the course of which statements were made by the representatives of Argentina (speaking also on behalf of Brazil), Austria, Bulgaria, Canada, Chile, China, Czechoslovakia, Ecuador, Egypt, France, Germany, the Holy See, Hungary, India, Indonesia, Japan, Mexico, the Netherlands, Nigeria, Pakistan, the Philippines, Portugal, Romania, Spain, Turkey, the Ukrainian Soviet Socialist Republic, the Union of Soviet Socialist Republics, the United States of America and Yugoslavia (see A/AC.105/PV.351-354).

16. The representatives of UNDRO, ESA, INTELSAT, INTERCOSMOS, COSPAR, IAF and ILA, as well as the Expert on Space Applications of the Outer Space Affairs Division, also made statements (see A/AC.105/PV.353-354 and 356).

17. During the session, a special presentation was made by Mr. Jiri Kraml, Senior Relief Coordinator, UNDRO, on "Disaster Relief Management".

18. After considering the various items before it, the Committee, at its 365th meeting, on 6 June 1991, adopted its report to the General Assembly containing the recommendations and decisions set out in the paragraphs below.

II. RECOMMENDATIONS AND DECISIONS

A. Ways and means of maintaining outer space for peaceful purposes (agenda item 6)

19. In accordance with paragraph 26 of General Assembly resolution 45/72 of 11 December 1991, the Committee on the Peaceful Uses of Outer Space continued its consideration, as a matter of priority, of ways and means of maintaining outer space for peaceful purposes.

20. The Committee was of the view that the request of the General Assembly, in its resolution 45/72, to the Committee to consider, as a matter of priority, ways and means of maintaining outer space for peaceful purposes and to report thereon, showed the concern felt by the international community and the need to promote international cooperation in the peaceful uses of outer space, taking into account the needs of the developing countries. The Committee, through its work in the scientific, technical and legal fields, had an important role to play in ensuring that outer space was maintained for peaceful purposes. It was the firm belief of the members of the Committee that developments that would strengthen the role of the Committee in maintaining outer space for peaceful purposes should continue. The Committee had responsibilities relating to the strengthening of the international basis for the peaceful exploration and uses of outer space, which could cover, among other matters, further development of international space law, including, as appropriate, the preparation of international agreements governing various practical peaceful applications of the achievements of space science and technology. Strengthening international cooperation in the peaceful exploration and use of outer space also implied the need for the Committee itself to improve, whenever necessary, the methods and forms of its work.

21. The Committee agreed that a good way to broaden and deepen international cooperation in outer space was through international and regional programmes undertaken as part of universal endeavours such as International Space Year.

22. Some delegations expressed the view that the Committee should complement the work being done in bilateral and multilateral forums towards preventing an extension of the arms race into outer space and could provide substantive input to the discussions and negotiations in the Conference on Disarmament. Some of them further pointed out that the scope of the priority item on the agenda of the Committee was very vast and went far beyond purely disarmament areas, including, for example, such questions as prevention of conflicts and incidents and confidence-building measures. These delegations emphasized that the Committee should analyse the entire scope of the item and devise and recommend appropriate measures. They noted that some proposals that were within the clear competence of the Committee were already being considered by the Conference on Disarmament. In this connection, while recognizing the unique competence of the Conference on Disarmament on the questions relating to the prevention of an arms race in outer space, they expressed the view that the Committee should be kept informed as to the progress made by the Conference on the questions and that working contact should be established between the two bodies, including contacts through the Chairman of the Committee and the Chairman of the Conference's ad hoc Committee on the Prevention of an Arms Race in Outer Space. They further expressed the view

that the peaceful uses of outer space were inseparably linked to the non-peaceful uses, and that promoting and strengthening the peaceful uses of outer space required effective measures to prevent militarization of outer space.

23. Other delegations expressed the view that disarmament questions did not fall within the competence of the Committee. They pointed out that, within the United Nations, the question of the prevention of an arms race in outer space was within the exclusive competence of the First Committee of the General Assembly and of the Conference on Disarmament. Some of those delegations expressed the view that the Committee should avoid extraneous and divisive topics such as disarmament and concentrate on strengthening the scientific and technical content of its work and on efforts to broaden and deepen cooperation by all countries in outer space activities. Some of those delegations felt that it would be inappropriate to undertake any exchange of information between the two bodies and questioned the need to have any contacts between them.

24. Still other delegations expressed the view that the promotion of the peaceful uses of outer space should be dealt with in the Committee, and the prevention of an arms race in outer space in the Conference, without, however, dividing their work into two exclusive compartments, since it was clear that on some outer space questions there would necessarily be an overlap. The important thing was that the Committee with primary responsibility pursue its own task, mindful of the concerns of the complementary body.

25. Some delegations noted that a number of proposals had been made with a view to promoting broad international and regional cooperation with a view to maintaining outer space for peaceful purposes. In their view, those proposals included: the establishment of a world space organization; a ban on the stationing of weapons in outer space; unilateral commitments not to place weapons in outer space; a ban on the use of force in outer space or from space to the Earth; the strengthening of confidence-building measures in space, such as agreement on a minimum distance between satellites; and establishment of a system for monitoring space activities to ensure that outer space was used for exclusively peaceful purposes.

26. Some delegations reiterated the view that the best way for the Committee to contribute to maintaining outer space for peaceful purposes was to promote international cooperation further by revitalizing its work and that of its subcommittees. In that connection, they proposed the establishment of a working group under the item to explore ways to make the work of the Committee and its subcommittees more effective.

B. Report of the Scientific and Technical Subcommittee on the work of its twenty-eighth session

Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (agenda items 7 and 9)

27. The Committee conducted a joint consideration of agenda items 7 and 9, entitled "Report of the Scientific and Technical Subcommittee on the work of its twenty-eighth session" and "Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space", respectively.

28. The Committee took note with appreciation of the report of the Scientific and Technical Subcommittee on the work of its twenty-eighth session (A/AC.105/483), covering the results of its deliberations on the items assigned to it by the General Assembly in its resolution 45/72.

1. Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space

(a) Working Group of the Whole

29. The Committee noted with satisfaction that, in accordance with General Assembly resolution 45/72, the Subcommittee had given priority consideration to the item entitled "Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space" and had re-established the Working Group of the Whole to evaluate the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82) 1/ under the chairmanship of Mr. Muhammad Nasim Shah (Pakistan).

30. The Committee noted with satisfaction that a number of reports related to the recommendations of UNISPACE 82 had been prepared in accordance with the recommendations of the Working Group of the Whole at its fourth session in 1990, as endorsed by the General Assembly in paragraph 10 of its resolution 45/72. The Committee also noted that further studies and reports would be undertaken in accordance with the recommendations of the Working Group of the Whole at its fifth session, held in 1991.

31. The Committee noted that the Working Group of the Whole had reviewed the implementation of the recommendations of UNISPACE 82, had concluded that many of the recommendations were still not fully implemented and had made a number of recommendations concerning the further implementation of the recommendations of the Conference. The Committee endorsed the recommendations of the Working Group of the Whole, as contained in its report (A/AC.105/483, annex II).

32. The Committee endorsed the decision of the Working Group to make, at its next session, a comprehensive assessment of the implementation of the recommendations of UNISPACE 82. It noted that the Secretariat, at the request of the Working Group, would prepare a background paper, taking into account

previous reports already prepared by the Secretariat, to assist the Working Group.

33. The Committee recommended that the Working Group of the Whole should be reconvened during the next session of the Scientific and Technical Subcommittee to continue its work.

34. The Committee, while expressing its appreciation to all Governments that had made or had expressed their intention of making contributions for the implementation of the recommendations of UNISPACE 82, took note of the disappointment expressed by the developing countries at the lack of financial resources to implement fully those recommendations.

(b) United Nations Programme on Space Applications

35. At the outset of the Committee's deliberations on this item, the United Nations Expert on Space Applications of the Outer Space Affairs Division reviewed the activities carried out and planned under the Programme on Space Applications during the period 1990-1992. The Committee expressed its appreciation to the Expert on Space Applications for the effective manner in which he had implemented the Programme within the limited funds at his disposal.

36. Some delegations, noting the very limited economic resources available to the Programme, requested that the financial resources be increased so that the Programme's activities could be more fully implemented. Some delegations expressed concern that the contributions of space Powers and developed countries had not been commensurate with their capabilities.

37. The Committee took note of the Programme on Space Applications, as set out in the report of the Subcommittee. The Committee was pleased to note that further progress was being made in the implementation of the Programme activities planned for 1991.

(i) Long-range fellowships for in-depth training

38. The Committee expressed its appreciation to the Governments of Austria, Brazil, China and the Union of Soviet Socialist Republics, as well as the ESA, for offering fellowships through the United Nations in 1990-1991 and for renewing their offers of fellowships for 1991-1992.

(ii) Technical advisory services

39. The Committee noted that the Programme had provided or would provide the following technical advisory services: to the Government of Costa Rica in the organization of the Space Conference of the Americas: Prospects of Cooperation for Development; to African countries within range of ESA ground stations with respect to the selection of sites for the acquisition of satellite data for remote sensing applications and in support of application and training activities relating to the use of the data sets; to the Economic Commission for Africa (ECA) for evaluating the remote-sensing programme of the Regional Centre for Services in Surveying, Mapping and Remote Sensing at Nairobi; and to the Centro de Levantamientos Integrados de Recursos Naturales por Sensores Remotos (CLIRSEN) of Ecuador with respect to the provision of

regional services by the Cotopaxi Remote Sensing Ground Receiving Station. The Committee also noted that, on the basis of funding made available from other sources for that purpose, the Programme would support conferences in collaboration with ECA for the benefits of African countries and in collaboration with the Economic and Social Commission for Asia and the Pacific (ESCAP) for the benefit of Asian and Pacific rim countries in 1993.

40. The Committee took note with interest of the offer made in the spirit of UNISPACE 82 on international cooperation by the Government of Chile to host a Second Space Conference of the Americas. In this connection, the Committee also noted with interest the request of Chile that the Outer Space Affairs Division, on the basis of other resources made available for that purpose, consider supporting such a conference.

(iii) United Nations workshops/training courses/seminars/meetings of experts

41. As regards the United Nations workshops, training courses, seminars and meetings of experts for 1991, the Committee expressed its appreciation to:

(a) The Government of India, as well as ESA, for co-sponsoring the United Nations/ESA Workshop on Basic Space Research, for the benefit of Member States in the ESCAP and Economic and Social Commission for Western Asia (ESCWA) regions;

(b) The Government of Spain, as well as ESA and FAO, for co-sponsoring the Third United Nations/FAO/ESA Workshop on Microwave Remote Sensing Technology, for the benefit of Member States in the ECA and ESCWA regions;

(c) The United Nations Environment Programme (UNEP), as well as ECA and FAO, for co-sponsoring the Regional Seminar on Remote Sensing for Decision-Makers, for the benefit of Member States in the ECA region;

(d) The Government of the United States for co-sponsoring the International Training Course on Remote Sensing Applications for Environmental Assessment and Monitoring, for the benefit of developing countries;

(e) The Government of China, as well as ESCAP and UNDRO, for co-sponsoring the United Nations/UNDRO/ESCAP Regional Workshop on Applications of Space Techniques to Combat Natural Disasters, for the benefit of developing countries;

(f) The Government of Germany, as well as ESA, for co-sponsoring the Third United Nations International Training Course on the Use of Remote Sensing in Geological Sciences, for the benefit of developing countries;

(g) The Government of Peru, as well as FAO, WMO and ESA, for co-sponsoring the Sixth United Nations/FAO/WMO/ESA Training Course on the Applications of Remote Sensing in Agrometeorology and Hydrological Studies, for the benefit of countries in the ECLAC region;

(h) The Government of Canada, as well as IAF, for hosting and co-sponsoring the United Nations/IAF/Canada Workshop on Space Technologies for Development, for the benefit of developing countries.

42. The Committee endorsed the programme of United Nations workshops, training courses, seminars and meetings of experts proposed for 1992 as outlined by the United Nations Expert on Space Applications of the Outer Space Affairs Division in his report (see A/AC.105/478, para. 34) and recommended those activities for approval by the General Assembly. In so doing, the Committee welcomed the invitations from:

(a) The Government of the United States to host and co-sponsor the United Nations/United States International Conference on Satellite Remote Sensing for Resource Management, Environmental Assessment and Global Change Studies: Needs and Applications in the Developing World, for the benefit of devloping countries;

(b) The Government of Sweden to host and co-sponsor the Second United Nations/Sweden International Training Course on Remote Sensing Education for Educators, for the benefit of developing countries;

(c) The Government of the USSR to host and co-sponsor the third United Nations/USSR International Seminar on Satellite Communications, for the benefit of developing countries;

(d) The Governments of Ecuador and Japan for respectively hosting and financing a United Nations Workshop on Space Technology for Resource Development and Environmental Management, for the benefit of Member States in the ECLAC region;

(e) ESA, as well as FAO and WMO, for co-sponsoring the Seventh United Nations/FAO/WMO/ESA Training Course on the Applications of Remote Sensing in Agrometeorological and Hydrological Studies, for the benefits of Member States in the ECA region;

(f) The International Centre for Theoretical Physics (ICTP) and FAO for hosting and co-sponsoring a Training Course on Remote Sensing Applications, for the benefit of developing countries;

(g) The ICTP, UNESCO and WMO for co-sponsoring a Conference on Bridging the Information Gap in Space Science and Technology, to be held at United Nations Headquarters, for the benefit of developing countries;

(h) The IAF and COSPAR for co-sponsoring a Workshop on Space Technologies for Development - Making it Happen, for the benefit of developing countries;

(i) The ISPRS for co-sponsoring a Workshop on Data Analysis Methods and Applications, for the benefit of developing countries.

43. The Committee also noted with appreciation the financial contributions of $9,000 from the Government of Austria, $12,000 from the Government of Pakistan and $25,000 from ESA in support of the 1990 activities of the Programme on Space Applications, and the contributions of $7,000 from the Government of Greece and $75,000 from ESA in support of the 1991 activities. The Committee also noted with appreciation the provision of experts, as instructors and speakers in the activities of the Programme on Space Applications, by the host countries and other countries. The Committee also noted the financial and other assistance provided by ESCAP, FAO, UNDP, UNESCO, WMO and ESA.

(iv) Programme of greater co-operation in space science and technology

44. Regarding the promotion of greater cooperation in space science and technology, the Committee noted with satisfaction that the United Nations Programme on Space Applications in 1990 had collaborated with IAF by co-sponsoring a special session on "Space and Forest Management" during the 1991 IAF Congress, held at Dresden, Germany, and with COSPAR by co-sponsoring a special panel on the "Equatorial Electrojet and Related Phenomena" during the 1990 Plenary Meeting of COSPAR, held at the Hague. The Committee further noted that the Programme was planning future collaboration with ISPRS by co-sponsoring a special workshop for developing countries at the 1992 Congress of the ISPRS, and with COSPAR and IAF on a workshop for developing countries in conjunction with the 1992 World Space Congress at Washington.

(c) International Space Information Service

45. With regard to the International Space Information Service, the Committee noted with satisfaction the publication of: the second volume of Seminars of the United Nations Programme on Space Applications (A/AC.105/468), containing selected papers from the seminars, workshops and training courses of the 1990 Programme; an addendum to the list of experts in space technology and applications (A/AC.105/460/Add.1); and a report on the economic aspects of expanding and strengthening national and regional data banks and establishing an international space information service (A/AC.105/474). The Committee noted that a number of previous publications would be updated for 1992: The Directory of Education, Training, Research and Fellowship Opportunities in Space Science and Technology and its Applications (A/AC.105/432 and Add.1); The Directory of Information Systems on Space Science and Technology (A/AC.105/397/Rev.1 and Add.1); and the list of experts in space technology and applications (A/AC.105/460/Add.1).

(d) Coordination of space activities within the United Nations system and inter-agency cooperation

46. With regard to coordination of outer space activities within the United Nations system and inter-agency cooperation, the Committee noted the request of the General Assembly, contained in its resolution 45/72, to all organs, organizations and bodies of the United Nations system to cooperate in the implementation of the recommendations of UNISPACE 82.

47. The Committee further noted with appreciation that the Scientific and Technical Subcommittee had continued to stress the necessity of ensuring continuous and effective consultations and coordination in the field of outer space activities among organizations within the United Nations system. The Committee noted with satisfaction that the twelfth Inter-Agency Meeting on Outer Space Activities had been held in 1990 (see ACC/1990/PG/9) and that a report on coordination of outer space activities within the United Nations system had been submitted to the Scientific anad Technical Subcommittee (A/AC.105/465). The Committee also noted with appreciation that the thirteenth Inter-Agency Meeting on Outer Space Activities would be held in September 1991 at UNDRO at Geneva.

48. The Committee noted with appreciation the participation in all stages of its work and in that of its Subcommittee by representatives of United Nations bodies, the specialized agencies and other international organizations. The

Committee found the reports submitted by those bodies helpful in enabling it and its subsidiary bodies to fulfil their role as a focal point for international cooperation, especially with respect to the practical applications of space science and technology in developing countries.

(e) Regional and interregional cooperation mechanisms

49. Regarding regional and interregional cooperation mechanisms, the Committee noted with satisfaction that, pursuant to General Assembly resolution 45/72, paragraph 14, and the recommendations of UNISPACE 82, the Secretariat had continued to seek to strengthen regional mechanisms of cooperation by organizing regional workshops and training courses as part of the United Nations Programme on Space Applications and by providing technical assistance to ECA, the Sociedad de Especialistas Latinoamericanos en Percepción Remota (SELPER) and to other regional activities in Africa and Latin America.

50. The Committee noted with satisfaction that a number of Member States in the ECA, ECLAC, ESCAP and ESCWA regions had expressed interest in hosting the proposed regional centres for education in space science and technology, based on existing national or regional educational institutions in developing countries, as outlined in the report of the Expert (A/AC.105/478, paras. 35 to 44). The Committee noted that evaluation missions, which will include representatives of the United Nations system and potential donor countries, were being planned to evaluate the potential host institutions. The Committee urged Member States to consider providing voluntary contributions to support that effort.

51. The Committee noted the contributions made by other international organizations towards the implementation of the recommendations of UNISPACE 82. In particular, the Committee noted: that UNDRO was promoting the use of communication satellites for emergency communications for disaster relief operations; that FAO, through its Remote-Sensing Centre, was continuing its efforts to assist developing countries in the applications of remote sensing; that ITU was continuing its work in coordinating international telecommunications and providing advisory services to developing countries; that ESA was continuing its space science and applications programmes, including activities in cooperation with developing countries; that INMARSAT was continuing to develop its system of maritime and aeronautical communication satellites, including the use of small and low-cost terminals of particular interest to developing countries; that INTELSAT was continuing to develop its system of international communication satellites for use by all countries and was expanding its training programme for developing countries; and that INTERCOSMOS was continuing its efforts to promote international cooperation in space science, with participation by developing countries.

2. Matters relating to remote sensing of the Earth by satellites including, inter alia, applications for developing countries

52. The Committee noted that, in accordance with General Assembly resolution 45/72, the Subcommittee had given priority consideration to matters relating to remote sensing of the Earth by satellites.

53. The Committee also noted that, in the course of the debate in the Subcommittee, delegations had reaffirmed their basic positions relating to remote sensing, which had been reflected in the reports of the previous sessions of the Subcommittee.

54. The committee recognized the importance of continuing international efforts to ensure the continuity, compatibility and complementarity of systems for remote sensing of the Earth and to promote cooperation through regular meetings between satellite operators, ground station operators and users.

55. The Committee recognized the example of international cooperation given by the free distribution of meteorological information. All countries and agencies were urged to continue that practice.

56. Some delegations expressed serious concern over the commercialization of remote-sensing activities and suggested that the prices of remote-sensing data products and access fees for data reception should be reduced significantly so as to make them affordable for the developing countries and enable the latter to benefit fully from the use of remote-sensing technology.

57. The Committee endorsed the recommendation of the Subcommittee that, recalling General Assembly resolution 41/65 of 3 December 1986 by which the Assembly had adopted the Principles Relating to Remote Sensing of the Earth from Outer Space, it would continue, at its twenty-ninth session, its discussion on remote-sensing activities conducted in accordance with those principles.

58. The Committee endorsed the recommendation of the Subcommittee that the item should be retained on its agenda as a priority item for the next session.

3. Use of nuclear power sources in outer space

59. The Committee noted that, in accordance with resolution 45/72, the Subcommittee had given priority consideration to the item relating to use of nuclear power sources in outer space.

60. The Committee endorsed the recommendation of the Subcommittee that Member States should be invited to report to the Secretary-General on a regular basis with regard to national and international research concerning the safety of nuclear-powered satellites.

61. The Committee endorsed the recommendation of the Subcommittee that further studies should be conducted on the problem of the collision of nuclear power sources with space debris and the Subcommittee should be kept informed of the results of such studies.

62. The view was expressed that the scientific and technical guidelines for the safe use of nuclear power sources in outer space needed certain changes to enhance their technical strength. Other delegations expressed the view that negotiations on the guidelines should not be reopened.

63. Some delegations expressed the view that it would be useful to invite the United States of America and IAEA to present more detailed scientific explanations of their proposals and views regarding draft principle 3 so as to promote understanding among Member States in the scientific and technical field and to facilitate legal work on that principle in future sessions of the Legal Subcommittee.

64. Noting the Subcommittee's recommendation that the Committee should consider the question of reconvening the Working Group on the Use of Nuclear Power Sources in Outer Space, the Committee recommended that the Subcommittee should, if appropriate, reconvene the Working Group in order to continue work on the subject.

65. The Committee endorsed the recommendation of the Subcommittee that the item should be retained on its agenda for the next session.

4. Space transportation systems

66. The Committee noted that, in accordance with General Assembly resolution 45/72, the Subcommittee had continued consideration of the item relating to space transportation systems and their implications for future activities in space.

67. The Committee took note of the progress being achieved in the various programmes in operation or planned by China, Japan, the Union of Soviet Socialist Republics, the United States and ESA.

68. The Committee endorsed the recommendatoin of the Subcommittee to continue consideration of the item at its next session.

5. Examination of the physical nature and technical attributes of the geostationary orbit; examination of its utilization and applications, including, inter alia, in the field of space communications, as well as other questions relating to space communications developments, taking particular account of the needs and interests of developing countries

69. The Committee noted that, in accordance with General Assembly resolution 45/72, the Subcommittee had continued consideration of the item relating to the geostationary orbit.

70. The Committee noted that delegations had reiterated and elaborated on the views concerning the question of the geostationary orbit that had been expressed at earlier sessions and reflected in earlier reports of the Committee and its two subcommittees.

71. The Committee expressed its appreciation to ITU for submitting its thirtieth annual progress report on telecommunication and the peaceful uses of outer space (A/AC.105/488). Some delegations, in their statements, stressed the important technical scope of the work of ITU, while drawing attention to

the competence of the Committee on the Peaceful Uses of Outer Space in preparing policy decisions that refer to the geostationary orbit.

72. The Committee endorsed the recommendation of the Subcommittee that it should continue consideration of the item at its next session.

6. Matters relating to life sciences, including space medicine; progress in the geosphere-biosphere (global change) programme; matters relating to planetary exploration; matters relating to astronomy

73. The Committee noted that, in accordance with General Assembly resolution 45/72, the Subcommittee had continued to consider the items concerning matters relating to life sciences, including space medicine; progress in national and international space activities related to the Earth environment, in particular progress in the geosphere-biosphere (global change) programme; matters relating to planetary exploration; and matters relating to astronomy.

74. The Committee noted with satisfaction that a number of special presentations had been made to the Subcommittee on those items by specialists from various countries. The Committee expressed its appreciation to COSPAR for its informative presentation on progress in the International Geosphere-Biosphere Programme.

75. The Committee endorsed the recommendations of the Subcommittee to continue consideration of the above items at its next session.

7. Themes fixed for special attention at the 1991 and 1992 sessions of the Scientific and Technical Subcommittee

76. The Committee noted that, in accordance with General Assembly resolution 45/72, the Subcommittee had considered the theme fixed for special attention at the 1991 session of the Scientific and Technical Subcommittee: "Applications of airborne and satellite remote sensing for prospecting mineral and groundwater resources and for monitoring and managing biological resources, with emphasis on agriculture, taking into particular account the needs of developing countries".

77. The Committee noted with satisfaction that, in accordance with Assembly resolution 45/72, COSPAR and IAF had conducted a symposium on the theme. The Committee expressed its appreciation to COSPAR and IAF for their generous support of the work of the Subcommittee.

78. The Committee noted the important contributions of satellite remote sensing for geological prospecting, for groundwater development, for water resources management, for agricultural planning and for forest management.

79. The Committee endorsed the recommendation of the Subcommittee that the new theme fixed for special attention at the 1992 session of the Subcommittee should be "Space technology and the protection of the Earth's environment:

development of endogenous capabilities, in particular in the developing countries and in the context of International Space Year". It also endorsed the recommendation of the Subcommittee that COSPAR and IAF, in liaison with and under the guidance of Member States, should be invited to arrange a symposium on that theme, with as wide a participation as possible, to be held during the first week of the Subcommittee's session to complement discussions within the Subcommittee on the special theme.

80. The Committee had before it a summary of the scientific and technical presentations made during the twenty-eighth session of the Scientific and Technical Subcommittee (A/AC.105/487).

81. Some delegations, while recognizing the significance of the scientific and technical presentations to the Subcommittee, expressed the view that the presentations should not interfere with the substantive work of the Subcommittee, which should have priority over such presentations. Some of those delegations expressed the view that the unique role of the Subcommittee as an intergovernmental forum should be strengthened. Those delegations further expressed the view that the task of the Subcommittee was to discuss policies and guidelines for international cooperation in space activities and to provide agreed technical parameters in order to help the development of the international regulation of the peaceful uses of outer space.

8. International Space Year

82. The Committee agreed that International Space Year provided an opportunity to strengthen and expand international cooperation in the peaceful uses of outer space and noted the importance of including all countries in the activities of the Year. The Committee noted that this was particularly importnt considering that International Space Year coincides with the tenth anniversary of UNISPACE 82.

83. The Committee noted that the General Assembly, in resolution 45/72, had urged Member States and international organizations to consider supporting the efforts of the United Nations in connection with International Space Year (ISY). The Committee took note of the proposed programme for the participation of the United Nations in ISY on the basis of voluntary contributions, as described in the second edition of the guidebook, "UN-ISY 1992: The Participation of the United Nations System in International Space Year".

84. The Committee noted that the United Nations, in the context of ISY, was planning an exhibition based on observations of the Earth from space, a series of videos, an essay contest and a commemorative stamp on the theme of ISY. It further noted that Member States were participating in and contributing to a number of those activities.

85. The Committee noted that the United Nations ISY activities were being planned to be complementary to the activities of international organizations such as COSPAR, IAF, ISPRS and the Space Agency Forum for International Space Year (SAFISY), and that the United Nations activities would promote the participation of developing countries in ISY activities. The Committee noted that the Secretary-General had sent a note verbale to Member States inviting

additional proposals and voluntary contributions from Member States in support of United Nations ISY activities.

86. The Committee expressed its appreciation to those Member States and international organizations that had offered voluntary contributions in support of those activities. The Committee noted that generous voluntary contributions were needed from Member States, international organizations and other sources acceptable to the United Nations in order to successfully execute United Nations ISY activities through the United Nations Programme on Space Applications, since the Programme was dependent on voluntary contributions for most of its activities. The Committee urged other Member States, international organizations and other funding sources to support the activities planned by the United Nations as part of International Space Year.

87. The Committee took note of the national and international activities being planned for International Space Year, including activities planned through the Space Agency Forum on International Space Year, the plans of COSPAR and IAF for celebrating 1992 as International Space Year with a joint World Space Congress to be held at Washington, and activities relating to "Mission to Planet Earth". The Committee also noted the proposal in the context of the International Geosphere-Biosphere Programme for a series of polar-orbiting satellites called "PEACE" (Protection of Environment for Assuring Cleaner Earth) with sensors for continuous global monitoring of the Earth's environment. The Committee noted the importance of the participation of all countries, in particular developing countries in those activities.

88. Noting that a number of Member States had previously provided information to the Subcommittee and the Committee concerning activities to be undertaken in cooperation with the United Nations in the context of International Space Year, as contained in the guidebook and in documents A/AC.105/445 and Adds.1-4, the Committee welcomed the proposed contributions of Japan to United Nations partipation in International Space Year, including a United Nations Regional Workshop on Space Technology for Resource Development and Environment Management, support for the United Nations Exhibition, special videos on space science, participation in the United Nations essay contest, and the provision of two staff members to the Outer Space Affairs Division. The Committee also noted that Japan was planning a number of conferences, workshops, seminars and training courses, with the participation of experts from developing countries, and was studying ways and means of contributing to the proposed regional centres for space science and technology education, as described in A/AC.105/445/Add.5.

89. The Committee noted the primary focus of ISY activities on the use of space technology for studying and monitoring the global environment. It also noted that the United Nations Conference on Environment and Development was being planned for 1992 and that the General Assembly, in resolution 45/72, had recommended that Member States, in planning their ISY activities, should consider ways in which those activities could complement the efforts under way for the Conference.

90. The Committee took note of the preparations being made for the United Nations Conference on Environment and Development, including participation by various bodies of the United Nations system, as presented in a statement by a representative of the Conference secretariat. The Committee found the

information provided useful and expressed its appreciation to the Conference secretariat for providing the information, in accordance with the recommendation of the Scientific and Technical Subcommittee. The Committee invited the Conference secretariat to keep it informed of further developments in the preparations for the Conference.

91. The Committee took note of the proposal that in 1992, the Committee itself and its Scientific and Technical Subcommittee should dedicate at least one meeting of their regular sessions to International Space Year and recommended that the General Assesmbly should do the same while considering the report of the Committee.

9. Space and Earth environment

92. The Committee noted that the General Assembly, in its resolution 45/72, had recommended that more attention should be paid to all aspects related to the protection and preservation of the outer space environment, especially those potentially affecting the Earth's environment.

93. The Committee also noted that the General Assembly, in the same resolution, had considered that it was essential that Member States should pay more attention to the problem of collisions with space debris and called for the continuation of national research on the question. The General Assembly, in the same resolution, had also considered that space debris could be an appropriate subject for discussion by the Committee in the future.

94. The Committee agreed that there was a need for further research concerning space debris, for the development of improved technology for the monitoring of space debris and for the compilation and dissemination of data on space debris. The Committee also noted the importance of international cooperation in addressing those issues.

95. The Committee agreed that information on national research on space debris should, to the extent possible, be provided to the Subcommittee, in order to allow the Subcommittee to follow this area more closely. In this connection, the Committee requested the Secretariat to invite Member States to provide such information on their national research to the Subcommittee.

96. Some delegations expressed the view that the question of space debris should be included on the Subcommittee's agenda at its next session, allowing for a general exchange of views and information. The view was also expressed that, while recognizing the importance of the subject, such consideration was premature until further national research on the problem of space debris had been completed.

97. The Committee noted the importance of satellite remote sensing for monitoring the Earth's environment, and in particular for studying and monitoring global change.

98. The Committee took note of a working paper submitted by Poland (A/AC.105/L.190) calling for the preparation of a report on the preservation and protection of the outer space environment, especially activities potentially affecting the Earth environment. Some delegations expressed their support for the idea contained in the working paper.

C. Report of the Legal Subcommittee on the work of its thirtieth session (agenda item 8)

99. The Committee took note with appreciation of the report of the Legal Subcommittee on the work of its thirtieth session (A/AC.105/484), which contained the results of its deliberations on the items assigned to it by the General Assembly in its resolution 45/72.

100. The Committee took note of the "Draft for a Convention on Manned Space Flight" which had been presented to the Legal Subcommittee by the representative of the International Astronautical Federation.

1. The elaboration of draft principles relevant to the use of nuclear power sources in outer space, with the aim of finalizing the draft set of principles

101. The Committee noted that the Subcommittee, in accordance with General Assembly resolution 45/72, had continued to consider this item through its Working Group under the chairmanship of Mr. H. Winkler (Austria).

102. The Committee noted the work carried out by the Subcommittee and the Working Group, as reflected in their reports (A/AC.105/484, paras. 21-27, and annex I).

103. The Committee noted that the delegations of Canada and Germany had submitted to the Subcommittee a revised version of the Working Paper submitted by Canada (A/AC.105/C.2/L.154/Rev.9). The Committee noted that during its session the same delegations presented a new version of the working paper (A/AC.105/C.2/L.154/Rev.10, continued in annex IV to the present report), expressing the hope that it could constitute a solid basis for consensus at the next session of the Legal Subcommittee.

104. The Committee noted that informal consultations on the remaining draft principles had continued during its session. As a result of these informal negotiations, the Committee reached consensus on draft principles 8 and 9, which read as follows:

Principle 8: Responsibility

In accordance with article VI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, States shall bear international responsibility for national activities involving the use of nuclear power sources in outer space, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that such national activities are carried out in conformity with that Treaty and the recommendations contained in these principles. When activities in outer space involving the use of nuclear power sources are carried on by an international organization, responsibility for compliance with the aforesaid Treaty and the recommendations contained in these principles shall be borne both by the international organization and by the States participating in it.

Principle 9: Liability and compensation

1. In accordance with article VII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the provisions of the Convention on International Liability for Damage Caused by Space Objects, each State which launches or procures the launching of a space object and each State from whose territory or facility a space object is launched shall be internationally liable for damage caused by such space objects or their component parts. This fully applies to the case of such a space object carrying a nuclear power source on board. Whenever two or more States jointly launch such a space object, they shall be jointly and severally liable for any damage caused, in accordance with article V of the above-mentioned Convention.

2. The compensation that such States shall be liable to pay under the aforesaid Convention for damage shall be determined in accordance with international law and the principles of justice and equity in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf a claim is presented to the condition which would have existed if the damage had not occurred.

3. For the purposes of this principle, compensation shall include reimbursement of the duly substantiated expenses for search, recovery and clean-up operations, including expenses for assistance received from third parties.

105. The view was expressed that the current consensus regarding these two principles did not preclude consideration of this subject by delegations during the next session of the Legal Subcommittee.

106. The Committee agreed that in future negotiations of the set of draft principles all delegations should be kept fully informed on developments so that they can properly decide on the adoption of each principle and the resulting set of principles.

107. The view was expressed that consensus on draft principles 8 and 9 had been joined on the understanding that, once agreement had been reached on all of the principles, the Subcommittee would address outstanding issues such as the use of the terms "should" and "shall" and would consider whether any adjustments would be necessary to ensure that the principles are properly interrelated and balanced and would have their intended effect. The view was also expressed that the changes in principle 9 since the last session of the Legal Subcommittee simply clarify the understanding that the relevant liability and compensation provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the Convention on International Liability for Damage Caused by Space Objects should apply, as provided, to the use of nuclear power sources in outer space.

108. Some delegations expressed the view that draft principle 2 and draft principle 4 should be combined into a single principle providing for a safety assessment to be made publicly available prior to each launch. Other

delegations expressed the view that the nature and content of draft principles 2 and 4 were different and that they should remain separate principles. Still other delegations expressed the view that the Subcommittee should focus its attention on identifying and incorporating all of the elements concerning notification and safely assessment in the draft text before considering whether to have one principle or two.

109. The view was expressed that draft principle 3 on guidelines and criteria for safe use of nuclear power sources in outer space needed certain changes to enhance its technical strength. Other delegations expressed the view that negotiations on draft principle 3 should not be reopened. Some of those delegations noted that draft principle 12, as contained in document A/AC.105/C.2/L.154/Rev.9, would provide the opportunity to revise the principles in the future.

110. Some delegations expressed the view that, once consensus had been reached on remaining principles, the Subcommittee could review the complete set of principles in order to consider whether any adjustments would be necessary in order to ensure that the principles were properly interrelated and balanced and that they would achieve their intended effect.

111. Some delegations expressed the view that a clear set of principles were required to ensure protection of the Earth's population and environment. Those delegations felt that such a set of principles should include clear provisions for safety standards, notification procedures and definition of responsibility in case of accidents involving nuclear power sources.

112. The Committee took note of a statement by the representative of the IAEA, as an observer, concerning the consistency of provisions of draft principle 3 with the recommendations of the International Commission on Radiological Protection (ICRP). Some delegations welcomed the participation of IAEA experts, as observers, in future revisions of the technical guidelines following adoption of the complete set of principles. Other delegations were of the opinion that IAEA should attend the meetings of the Committee and its two subcommittees to provide expert advice on the elaboration of principles regarding the use of nuclear power sources in outer space.

113. The Committee agreed that the Subcommittees could invite the IAEA to provide technical views on issues upon which the IAEA had relevant expertise.

114. The Committee urged the Legal Subcommittee to make every effort in its work on the elaboration of the outstanding draft principles in order to arrive at a final text of draft principles relevant to the use of nuclear power sources in outer space as early as possible.

115. The Committee recommended that the Legal Subcommittee should continue consideration of the item at its next session.

2. Matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union

116. The Committee noted that the Subcommittee, in accordance with General Assembly resolution 45/72, had continued to consider this item through its Working Group under the chairmanship of Mr. E. Zawels (Argentina).

117. The Committee noted the work carried out by the Subcommittee and the Working Group, as reflected in their reports (A/AC.105/484, paras. 28-34, and annex II).

118. The Committee noted that a variety of views had been expressed on the question of the definition and delimitation of outer space. Those views were elaborated on and reiterated during the current session of the Committee. Some delegations reiterated the view that the question of delimitation was part of the more comprehensive legal question of the applicability of treaties, that it was necessary to have a conventionally defined boundary between air and outer space and that the Subcommittee should continue to consider the question, with a view to establishing a boundary between air space and outer space. Other delegations reiterated the view that the need for such a definition or delimitation had not yet been established, that attempts to establish prematurely such a definition or delimitation might complicate and impede progress in the peaceful exploration and use of outer space, that consideration of the matter was not productive and that the question of the definition and delimitation of outer space should be removed from the agenda or set aside. Still other delegations expressed the view that, in dealing with the question of delimitation, account should be taken of the characteristics of the geostationary orbit.

119. Some delegations reiterated the view that the Legal Subcommittee, in its consideration of this item, could consider international legal aspects of future exploitation of aerospace systems. Those delegations also noted the indication that a detailed proposal would be submitted to the Subcommittee in the near future as a basis for discussions on the subject.

120. The Committee took note of the deliberations on the question of the geostationary orbit as contained in the report of the Legal Subcommittee. The Committee noted that an exchange of views had taken place on this item, particularly on the basis of the ideas formulated in the "working non-paper" (A/AC.105/484, annex II, para. 12). Some delegations felt that the "working non-paper" should provide a valuable basis for further discussions.

121. Some delegations expressed the view that the geostationary orbit was part of outer space and that its legal status was subject to all provisions of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies [General Assembly resolution 2222 (XXI)] and to the appropriate rules of ITU, which had the value of a treaty. Other delegations expressed the view that the geostationary orbit, because of its particular characteristics, required a special legal regime to regulate access and utilization by all

States, taking into account the needs of developing countries. Some delegations expressed the view that such a legal regime should also take into consideration the particular situation of the equatorial countries.

122. Some delegations expressed the view that the roles of ITU and of the Subcommittee were complementary and that the Subcommittee could contribute to the establishment of a special legal regime to regulate the use of the geostationary orbit. Other delegations expressed the view that ITU was the appropriate body to address questions concerning the use of the geostationary orbit and was addressing those questions effectively.

123. Some delegations expressed the view that equitable use of the geostationary orbit required a system of preferential rights, with preference in cases of competing requirements given to developing countries and countries that had not previously had access to the orbit. Other delegations suggested that such preference should take into account the legitimate concern of equatorial countries. Still other delegations felt that such preferences were inappropriate.

124. Some delegations expressed the view that the Subcommittee might consider the question of non-functional space objects in the geostationary orbit.

125. The Committee recommended that the Legal Subcommittee continue consideration of the item at its next session.

3. Consideration of the legal aspects related to the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries

126. The Committee noted that the Subcommittee, in accordance with General Assembly resolution 45/72, had continued to consider this item through its Working Group under the chairmanship of Mr. R. González (Chile).

127. The Committee noted the work carried out by the Subcommittee and the Working Group, as reflected in their reports (A/AC.105/484, paras. 35-46, and annex III).

128. Some delegations expressed the view that a working paper (A/AC.105/C.2/L.182), which had been submitted to the Subcommittee under this item, could provide a basis for further discussions, without prejudice to other proposals that had been made or would be made under this item.

129. The Committee noted that some Member States, in response to two notes verbales from the Secretary-General, had provided the Subcommittee with information relating to this agenda item (A/AC.105/C.2/15 and Add.1-13 and A/AC.105/C.2/16 and Add.1-10).

130. The Committee noted that the Working Group had requested its Chairman to prepare, for the next session of the Subcommittee, in 1992, a paper summarizing in an analytical manner the views and information contained in the

responses of Members States to the two notes verbales of the Secretary-General.

131. Some delegations expressed the view that it was essential to elaborate legal principles which would ensure that all countries could have access to, and benefit from, outer space activities. They felt that such principles must be established not only to benefit the developing countries, but also to maintain the peacefulness of outer space and to protect and preserve its environment. They felt that the draft principles on the subject presented by several developing countries in working paper A/AC.105/C.2/L.182 had been carefully drafted to take into account these concerns, as well as the interests of both developed and developing countries.

132. Some delegations expressed the view that future legal principles relating to this item should address the existing inequalities between the technologically advanced space nations and the developing countries without the infrastructure, resources and technological capability to benefit from space exploration and utilization. They felt that those principles should emphasize the development of indigenous space capabilities, particularly in developing countries, as well as ensuring access to space resources and technology and the widest possible diffusion of the benefits of space activities among the peoples of the world.

133. The view was expressed that the item under discussion must be the point of departure in order to establish a new international legal framework. Other delegations expressed the view that the new item provided only for an exchange of views on the subject and did not provide a mandate for the negotiation of a new international legal framework.

134. The view was also expressed that the timetable and work programme for this item, as agreed upon by the Subcommittee and endorsed by the General Assembly at its forty-fourth session had not been fully adhered to and that the work programme should be adhered to as the best course of action for yielding useful results.

135. Some delegations expressed the view that the enshrinement of the legal principles relating to the item on international cooperation in an appropriate international legal framework was something to be desired as a goal of common good.

136. The Committee recommended that the Legal Subcommittee should continue the consideration of the item at its next session.

137. The view was expressed that this item and the other two items under discussion in the Subcommittee must receive the same degree of importance.

D. Spin-off benefits of space technology: review of current status (agenda item 10)

138. In accordance with paragraph 27 of General Assembly resolution 45/72, the Committee took up the consideration of the above item.

139. The Committee noted with appreciation the study prepared at its request by the Outer Space Affairs Division on spin-off benefits of space technology (A/AC.105/486).

140. The Committee took note of the working paper on spin-off benefits of space technology submitted by the USSR (A/AC.105/L.191).

141. The Committee agreed that spin-offs of space technology were yielding substantial benefits in many fields. The Committee noted that spin-offs of space technology were providing new techniques for the field of medicine, including dry heat sterilization, artificial bone matrix and artificial veins and arteries. Spin-off applications for industry have included quality control systems, dry lubricants, precision machining techniques, new materials, food processing and consumer electronics.

142. The Committee noted that the importance of spin-off benefits was growing rapidly. The Committee also noted the importance of international cooperation in developing spin-off benefits of space technology and in ensuring that all countries, in particular developing countries, had access to those benefits.

143. The Committee agreed that there was a need to examine ways to strengthen and enhance international cooperation in the field of spin-off benefits of space technology, through, inter alia, improved means of providing access to spin-offs for all countries, giving particular attention to those spin-offs which could address the social and economic needs of developing countries.

144. The Committee noted that the United States publication NASA Tech Briefs containing information on technologies available for spin-off applications was now available internationally.

145. Some delegations emphasized the theme of universal access to benefits derived from space technology and they highlighted the complexity of the interests and elements involved. In that respect, they felt that promoting as wide a participation as possible of all countries in those benefits is a great challenge which requires new ways of thinking. Also, these delegations were of the opinion that the United Nations should contribute to the development of adequate procedures to disseminate those benefits, based on interaction, coordination and organization among countries, public and private organizations and individuals in order to utilize available technology, financing programmes, training programmes, and applications techniques, in order to solve specific problems on a case-by-case basis.

146. The view was expressed that efforts to promote the sharing of spin-off benefits could include the establishment of joint commercial ventures and the sharing of patent rights, particularly with respect to simple practical technologies adapted to local conditions in developing countries, through trade fairs, contributions of demonstration technologies, and through other means of disseminating information to increase public awareness of spin-off technologies and benefits.

147. The Committee recommended that it continue its consideration of the item at its next session.

E. Other matters

148. The Committee noted with appreciation the participation in its work and that of its Subcommittees by the representatives of FAO, IAEA, ICAO, ITU, WMO, UNESCO, ESA, INTELSAT, INTERSPUTNIK, INTERCOSMOS, COSPAR, IAF, ILA and ISPRS. The Committee requested that concerned organizations continue to keep it informed of their activities relating to the peaceful uses of outer space.

149. The Committee recommended that the Secretariat should invite Member States to submit annual reports on their space activities. In addition to information on national and international space programmes, the reports could include information in response to requests from the Working Group of the Whole as well as information on spin-off benefits of space activities and other topics as requested by the Committee and its subsidiary bodies.

F. Future work

150. The Committee noted the views expressed by the Scientific and Technical Subcommittee, as contained in paragraphs 114 to 116 of its report (A/AC.105/483), and endorsed the recommendations contained in those paragraphs concerning the agenda of the twenty-ninth session of the Subcommittee.

151. Regarding the agenda of the Legal Subcommittee, the Committee recommended that the Subcommittee, at its thirty-first session, should:

(a) Continue, through its Working Group, the elaboration of draft principles relevant to the use of nuclear power sources in outer space, with the aim of finalizing the draft set of principles;

(b) Continue, through its Working Group, its consideration of matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of ITU;

(c) Continue, through its Working Group, consideration of the legal aspects related to the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries.

152. The Committee recalled its recommendation that the Legal Subcommittee, on a permanent basis, should rotate each year the order of consideration of substantive agenda items.

153. Some delegations expressed the view that the current three-week duration of the sessions of the Legal Subcommittee was not necessary and that a reduction in the duration would facilitate progress in the Subcommittee and would result in the more efficient utilization of scarce conference service resources. Other delegations felt that the sessions of the Legal Subcommittee should be maintained at three weeks to allow sufficient time for negotiations on the complex legal issues before the Subcommittee and to guarantee substantive results.

154. In accordance with General Assembly resolution 44/201 B (sect. III) of 21 December 1989, the Committee considered the question of the venue of the Legal Subcommittee's future sessions.

155. Some delegations expressed the view that the Legal Subcommittee should cease the practice of holding alternate sessions at Geneva, in accordance with the recommendations of the Advisory Committee on Administrative and Budgetary Questions contained in paragraph 2A.7 of document A/44/7, supplement 7, since there were no discernible benefits to justify either the additional costs thereby incurred by the Organization or the continued exception to the General Assembly principle that United Nations bodies should meet at their headquarters. Other delegations expressed the view that the Subcommittee's practice of meeting every other year at Geneva was based on a long-standing consensus agreement in the Committee, that it had been confirmed by the General Assembly, and that it was useful and, therefore, should be continued in accordance with General Assembly resolution 40/243 of 18 December 1985.

156. The Committee decided that a decision on the present practice of holding alternate sessions of the Subcommittee in Geneva should be deferred until its thirty-sixth session, in 1993, when it could more fully evaluate the impact of the alternation system on the Committee's operations. In the meantime, the Committee decided, without prejudice to the decision to be taken in 1993, that the next session of the Subcommittee be held at Geneva and that the Secretariat should support that session, reducing in every possible way additional non-conference-servicing costs, and that the relevant United Nations committees should be informed of these decisions.

157. The Committee took note of the measures that had been adopted at the thirtieth session of the Legal Subcommittee in order to improve utilization of conference services. The Committee endorsed the agreement of the Subcommittee that a similar organization of work would serve as the basis for organizing the work of the Subcommittee's thirty-first session. The Committee recommended that the Chairman of the Subcommittee, in cooperation with delegations, should continue his efforts to improve the efficiency of utilization of conference resources by the Subcommittee.

G. Schedule of work of the Committee and its subsidiary bodies

158. The Committee indicated the following tentative timetable for 1992:

	Dates	Site
Scientific and Technical Subcommittee	18-28 February	New York
Legal Subcommittee	16 March-3 April	Geneva
Committee on the Peaceful Uses of Outer Space	8-19 June	New York

159. The Committee recommended that every effort be made in the future to ensure that the sessions of other committees reporting to the Special Political Committee of the General Assembly, particularly the Special Committee on Peace-keeping Operations and the Committee on Information, are scheduled so as not to overlap with the meetings of the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies.

160. The Committee agreed that in the future every effort should be made to avoid scheduling sessions of the Committee and its subsidiary bodies in periods during which official holidays fall.

H. Tributes

161. The Committee expressed its deepest appreciation and thanks to the Government and people of Austria, the Governor of Styria and the Mayor of Graz for the excellent arrangements that were made for the session and the warm hospitality that had been shown to delegations during their stay in Austria.

162. On the occasion of the appointment of Ambassador Peter Jankowitsch to the post of Minister of State for European Integration and Cooperation in the Federal Chancellory of the Austrian Government and his consequent resignation from the chairmanship of the Committee, the members of the Committee expressed their sincere congratulations and extended their best wishes to him in his important new tasks. They expressed their deep gratitude for his dedicated service to and leadership of the Committee over almost 20 years, during which his devotion to the tasks of the Committee had been a decisive factor in its important achievements in the promotion of international cooperation in the peaceful uses of outer space.

Notes

1/ Report of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 9 to 21 August 1982 (A/CONF.101/10 and Corr.1 and 2).

ANNEX I

Statement by the Under-Secretary-General for Political and Security Council Affairs on behalf of the Secretary-General

1. Let me at the outset express on behalf of the Secretariat my deep condolences on the tragic death of the Austrian nationals killed in the air crash this morning (27 May 1991) over Thailand.

2. It is with great pleasure that I extend to you, Mr. Chairman, and to the Committee, greetings from the Secretary-General of the United Nations, Mr. Javier Pérez de Cuéllar, and best wishes for a successful and productive session of the Committee on the Peaceful Uses of Outer Space.

3. The Committee on the Peaceful Uses of Outer Space was established by the General Assembly in 1959, with a membership of 24 States, in order to promote international cooperation in the peaceful uses of outer space. During the past 32 years the Committee has compiled an impressive list of achievements and has established a framework of generally accepted principles that ensure that all countries can benefit from space activities. The international issues arising from space activities have grown steadily more complex over the years, and the Committee, which has expanded to 53 States, has adapted its agenda to deal with them. I am sure that the Committee's strong tradition of fruitful cooperation and compromise will serve it well this year and in the future, as it has in the past.

4. Thanks to the work of the Committee and its member States, outer space has been an exemplary domain of international cooperation. The results of space research and development and the benefits of space applications have been made generally available and are being widely used for social and economic development. As is demonstrated in the Committee's work, scientists and engineers from many countries are developing new technologies and applications for resource management, communications, weather and storm forecasting, environmental monitoring and climate research. These space technologies have supported many international development projects undertaken by the United Nations system, using equipment, expertise and services provided by Member States. It should also be noted that work on space technology and space applications has given rise to spin-off benefits in many other areas of human activities, including medicine, new materials, data processing and manufacturing.

5. Within the United Nations system there are many bodies concerned with various aspects of space activities and many agencies that are using space applications in their technical assistance programmes. The Committee on the Peaceful Uses of Outer Space has been designated by the General Assembly as the focal point for international cooperation in space, and is the only body in the United Nations system with a mandate covering all aspects of the peaceful uses of outer space. The Committee therefore provides an essential forum for guiding and coordinating the increasingly wide range of space activities undertaken throughout the United Nations system and for continued elaboration of the legal framework in which national and international space activities can continue and develop without conflict.

6. The Secretariat, working under the Committee's direction, places great importance on the coordination of space-related activities within the United Nations system. Within the Department of Political and Security Council Affairs the work of the Outer Space Affairs Division and its Programme on Space Applications is coordinated through regular consultations with other agencies concerned with space activities to ensure that activities are not duplicated and that activities of common interest can be carried out in collaboration, making most effective use of the limited resources available. The highest priority within the Secretariat is given to assistance to developing countries through the United Nations Programme on Space Applications.

7. Despite the impressive extent of international cooperation in space, the potential benefits of space activities in all countries are far from being fully realized. There is still a great need to facilitate the exchange of scientific and technical information, strengthen international cooperative programmes and expand technical assistance to developing countries. The United Nations Secretariat is working with national and international organizations to provide assistance in these areas to Member States.

8. An important opportunity for promoting a more widespread appreciation of the benefits of space activities is provided by the international agreement to designate 1992 as International Space Year (ISY), a designation which was endorsed by the General Assembly on the recommendation of this Committee. A variety of United Nations activities is being planned, under the guidance of this Committee, to mark this Year, and in particular to promote the participation of developing countries in ISY. The United Nations activities for International Space Year are being coordinated with such international organizations as the Committee on Space Research (COSPAR), the International Astronautical Federation (IAF) and the Space Agency Forum for International Space Year.

9. The theme of International Space Year has been established as "Mission to Planet Earth", and many of the activities will be directed at the study and monitoring of the global environment. This is clearly an area in which international cooperation is essential if the problems are to be addressed effectively. International Space Year efforts to develop a coordinated programme of space observations and to analyse and use those observations will have enduring benefits for mankind. Many ISY activities will also focus on education, including both specialized training and public information, that will be essential for building support for environmental monitoring programmes. The Committee has an important role to play in guiding United Nations participation in ISY activities.

10. Before closing I should like to express our appreciation to the Government of Austria for inviting the Committee to meet here in Graz this year, and in particular to the Federal Minister for Foreign Affairs for being with us today. Austria has long been a strong supporter of the role of the United Nations in promoting the peaceful uses of outer space. I should also like to thank the Governor of the Province of Styria and the Mayor of the City of Graz for their warm hospitality and the excellent arrangements that have been made for these meetings. I should also mention the head of the Austrian delegation and Permanent Representative of Austria to the United Nations, Ambassador Peter Hohenfellner, who contributed much to making the meetings possible.

11. This year, we are informed, Ambassador Peter Jankowitsch will be relinquishing the chairmanship of the Committee, after almost 20 years, to move on to other responsibilities. On behalf of the Secretary-General, I should like to express appreciation for his dedication to the Committee and to the cause of international cooperation in space. The many achievements of the Committee over the last two decades have been due in no small part to his skill in guiding its work and his untiring efforts to find ways to achieve consensus on difficult issues. I am sure that these same qualities and skills will be valued in his new position, and I wish him the best in the future.

ANNEX II

Opening statement by the Federal Minister for Foreign Affairs of Austria

1. On behalf of the Government of Austria, I am pleased to welcome you to Graz. We feel very much honoured to host this Committee during its important deliberations.

2. Your meeting in this beautiful city of Graz also signals a significant development in the political fabric of Austria: the ever-increasing role played by the federal provinces in Austrian foreign policy. Graz, the capital city of Styria, has already become a focal point of transboundary political endeavours, in particular those related to the neighbouring countries to the east and south-east of Austria. Styria and Graz are most dynamic elements of the political landscape of this country. The hosting of a meeting of the most future-oriented body of the United Nations fits in well with this new dynamism displayed by one of the oldest parts of Austria.

3. Austria's active participation in the work of the United Nations, its membership in the European Community and the further intensification of its relations with the new democracies in Central and Eastern Europe are among the priorities of our foreign policy. Austrian involvement in the United Nations is best reflected by its continuous participation in peace-keeping operations since 1962.

4. In recent months the active role played by Austria in the United Nations was also fully recognized during elections to several key bodies of the world Organization: its election to the Security Council by 150 votes out of 154 is the best record of any member of that principal organ of the United Nations. Moreover, Austria had the best record of all Western members of the Economic and Social Council; it also received 41 out of 43 votes when it was elected to the Commission on Human Rights. This positive account reflects the degree of confidence enjoyed by Austria in the United Nations system. We Austrians will spare no effort to measure up to those high expectations.

5. Austria is proud of its role in the Committee on the Peaceful Uses of Outer Space. For many decades, Austrian diplomats have been guiding your work. Until recently, the Chair was successfully occupied by Dr. Peter Jankowitsch, former Austrian Ambassador to the United Nations, former Minister for Foreign Affairs and current Under-Secretary of State in the Office of the Prime Minister.

6. Activities concerning the peaceful uses of outer space and international cooperation in that area for the good of all mankind are major tasks of increasing importance. I firmly believe that today, perhaps more than ever before, outer space, with its enormous technological challenges, is about to become one of the crucial, possibly decisive, areas of international cooperation, an area in which new forms of international cooperation have to be developed.

7. Not too long ago, patterns of confrontation were extended to the policies pertaining to the use of outer space. At that time, the Committee particularly

stressed the need to preserve outer space for exclusively peaceful uses. The danger of the increasing militarization of outer space haunted mankind. But the times of confrontation in outer space, partly owing to recent changes in the international political situation, belong to the past. Solidarity and cooperation in the peaceful uses of outer space, once considered a moral and political postulate, have become a rational necessity. International cooperation has become an essential element of policies of "sustainable development". Mankind as a whole is confronted with a major challenge: to strike a balance between the development process and the availability of environmental and natural resources. The uses of outer space for information gathering, communication and resource management will also allow for a better understanding of the interdependence between resource systems and their use. Thus, the peaceful uses of outer space contribute to the development process. The presence of man in outer space has always been associated with highly dramatic events. We all remember the launching of the first satellite, Sputnik, or the presence of Yuri Gagarin as the first man in outer space or the pictures of Neil Armstrong setting foot on the Moon.

8. Much has happened since: in a quiet, perhaps less spectacular, but by far no less important process, peaceful space applications have decisively changed the quality of life in all parts of the world, in the industrialized as well as in the developing countries. It has become difficult to envisage daily life without such services as telecommunications, resource surveys or weather forecasts. And this process has by far not come to an end. The pictures of our Earth, which we receive from satellites, raise more than anything else mankind's awareness of the fragility of "Spaceship Earth".

9. A few years ago, this Committee agreed on a set of "Principles relating to remote sensing of the Earth from outer space". A compromise had to be struck between the freedom of space activities, the general interest in acquiring global environmental and resource data and the right of countries to control access to their natural resources. The observation of the Earth from outer space, providing a wealth of global information continuously and objectively, has become a basic means to learn about the various phenomena that condition the environment in all their aspects. We all depend on adequate access to this information. The consequences of changes in the international climate from unlimited urban growth, water, sea, air and land pollution, desertification, uncontrolled forest clearance or the death of the forest through acid rain - just to give a few examples - are brought to public awareness by striking pictures taken by satellites. We know today that no part of the globe is immune from threats to the environment. The participation of all countries, and of the developing countries in particular, in programmes in this field will enable them to derive maximum benefits for their own socio-economic development, which again is crucial for the preservation of the global environment.

10. Outer space has sometimes been called one of the "last frontiers" of mankind. I hesitate to associate myself with this statement, as the ultimate frontier for man rather lies within himself. Yet, we may need something of the frontier spirit in order to overcome national narrowness and achieve global generosity, to replace weakness by courage and to defeat confrontation by cooperation. Let me conclude, then, with my sincere wish that some of this spirit of generosity, courage and cooperation will also prevail in your deliberations during the next two weeks.

ANNEX III

Statement by the Chairman of the Committee on the Peaceful Uses of Outer Space

1. It is my most pleasant duty, presiding over the work of the Committee for the last time, to welcome you once again to Austria, Styria and Graz and to the thirty-forth session, an important one, I trust, of the Committee on the Peaceful Uses of Outer Space. May I also, at the outset, extend a special word of greeting to a new delegation among us, the delegation of the Ukrainian Soviet Socialist Republic, which is participating in the work of the Committee for the first time.

2. As usual, I shall review with you the results of the last sessions of our two Subcommittees, and consider the ways and means for our Committee successfully to discharge its duties and its mandate as the focal point for international cooperation in the peaceful uses of outer space - a mandate about which we have been reminded in the opening addresses.

3. I should also like on this occasion to reflect with you not only on some of the most recent developments that have occurred in the exploration and peaceful uses of outer space but also on some of the accomplishments of the Committee over the past 34 years, during 20 of which I have had the honour of being your Chairman.

4. As representatives are perfectly aware, the work of the Committee on the Peaceful Uses of Outer Space and that of its two subsidiary bodies has, over the past decades, led to the formulation and adoption of a number of important international legal instruments, to the development of a new branch of international law, space law, including first and foremost the "Magna Carta" of outer space, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. That Treaty remains the cornerstone of international cooperation in outer space and is one of the Committee's proudest achievements. It was followed by the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, the Convention on International Liability for Damage Caused by Space Objects, the Convention on Registration of Objects Launched into Outer Space and by the last major agreement - unfortunately already a couple of years ago - the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. More recently, the Committee was able to agree on a set of Principles Relating to Remote Sensing of the Earth from Outer Space. Those are some of the Committee's leading achievements. I hope that it will continue to write future space law whose importance will certainly be borne out in the future.

5. Also in the past 30 years, the world has benefited in many ways from space research, sometimes thanks to the example offered by the Committee. Space has opened up new horizons in science as demonstrated by many recent magnificent achievements, such as the trips of Voyager, Giotto, Magellan and others. We have seen the use of space technologies become part of the everyday lives of millions of people. A good example of this are the METEOSAT images we see on our television screens night after night. Communications satellites have revolutionized global communications, and mobile communications

systems hold great promise for the future. Satellite observations are increasingly important for accurate and timely weather forecasts and many other applications.

6. All these benefits, which space spin-offs offer society, are now taken for granted by the public. Yet, we are entering an era in which such developments will exert even greater influence on our living conditions and quality of life. Thus, I believe the 1990s will be the decade of the environment. We are increasingly faced with such global environmental problems as ozone depletion, global warming and the loss of a large portion of the world's forests in the developing countries. The challenge of understanding the Earth as an integrated system can only be faced through the joint effort of the international community, with space exploration playing an ever-increasing role. Thus, I am pleased to note that in the 1990s the major space agencies of the world are planning a fleet of advanced spacecraft as part of their contribution to the Global Change Programme. This initiative could represent the largest cooperative space effort ever envisaged.

7. Earth observation has also, through the "Mission to Planet Earth", been made the primary focus of the International Space Year mentioned earlier. Data from space is essential to promote further understanding of the complex interactions between the different components of the Earth system (atmosphere, oceans, ice, land, physics, chemistry and biology). Members are aware that not enough is yet known about the threats to man's environment for definitive conclusions to be reached. The findings, for example, of the Inter-governmental Panel on Climate Change demonstrate that today's forecasts still lack the necessary degree of reliability in many respects, particularly as regards the pace, scale and regional distribution of climate change. It is therefore going to take a long-term research effort, lasting more than a decade certainly, combined with intensified observation of the ocean/atmosphere/biosphere system to obtain a detailed understanding of the mechanisms at work.

8. Observation from space has come to play an ever important role in establishing the real facts about threats to the environment. In that regard, satellites have become a highly effective means of complementing the activities of ground-based observation networks studying the phenomena that determine our environment. We therefore need plans for making even more exhaustive use of space technology in the cause of improved understanding of our environment.

9. Finally, in that respect, may I also draw the attention of representatives to an area of space application, perhaps also a future space application, that seemed to be highly relevant during the days of the energy crisis in the late 1970s and early 1980s, but which then somehow sank into oblivion. I am referring to the case for the development of solar power systems so as to complement and perhaps replace some terrestrial sources of energy.

10. Allow me now to review some of the major space developments of the past year and earlier. I am pleased to note that despite many developments of an internal nature the Soviet Union in 1990 made 75 space launches, one more than in 1989. The United States total of 27 was that country's highest in 12 years, and will soon rise. Europe's Arianespace made five launches, China

five, Japan three and Israel one. A total of 150 satellites were launched last year, representing an expenditure estimated by some experts to amount to some $20 billion. On top of that, of course, are the long-term investments in space infrastructure, the new generations of expendable launchers and space ports to encourage, inter alia, international industry to develop its capabilities to make use of these facilities. Progress on the development of a commercial spaceport in Florida and of an international spaceport in Queensland, Australia, using a Soviet launcher are other impressive developments. Revenues earned by Spot Image and EOSAT on their remote-sensing images were at last taking off, demonstrating the possible commercial benefits of space flights.

11. There have been setbacks in 1990, as well, but they have been largely overcome or compensated by progress in the exploration and uses of outer space. The Hubble Space Telescope, for one, is beginning to penetrate the mysteries of the double planet Pluto/Charon, the solar system's only remaining planet not yet visited by a spacecraft. The Hubble Space Telescope is also studying storms on Saturn and jets of materials streaming away from the Orion Nebula. It should continue to reveal secrets of the universe until well into the next century. In addition to the launching of Hubble, 1990 ended with five other successful United States space shuttle flights, despice five months' stand-down owing to hydrogen leaks. The Galilec spacecraft started on its long journey to explore Jupiter and its many moons; and Magellan, after some early problems, is steadily mapping the mysterious domed mountains and "crater farms" of Venus. And yet another scientific spacecraft, the Ulysses of ESA, was launched on a unique mission to study the poles of the sun. Such knowledge is vital to our future understanding of Earth's environment and its likely behaviour.

12. But there have been spin-offs of interest not only to the scientific community but also to many other people. I am talking here of the interest in the recovery by the shuttle in February last year of the Long-Duration Exposure Facility (LDEF). About 14 million seeds were brought back to Earth after six years' exposure to the space environment. What this might lead to is illustrated by the fact that irradiation of white grapefruit seeds gave us the much-loved pink grapefruit. Whether the produce from the LDEF seeds will result in similar beneficial mutations remains to be seen, but this remains another interesting example of spin-offs from outer space. Many other achievements could be mentioned.

13. I am particularly pleased to note also progress in the talks among experts from the United States, Europe and the USSR on the joint development of manned lunar bases and missions to Mars.

14. On 12 April 1991 we marked the thirtieth anniversary of the first human flight into outer space, another significant anniversary. Indeed, since Yuri Gagarin circled the Earth much has been accomplished in the peaceful exploration of outer space.

15. In the now common field of space transportation, continued improvement in the international climate has led to increased cooperation. In addition to launching a communications and meteorological satellite and a recoverable satellite for remote sensing, life sciences and material sciences, China also provided launches for the Asiasat commercial communication satellite and

Pakistan's Badr experimental satellite. A Japanese cosmonaut paid a short visit to the USSR Mir space station, on which astrophysical, geophysical, biological and medical experiments are being conducted. Training for similar missions in the future is making good progress, involving astronauts or "Euronauts" from Austria, France, Germany and the United Kingdom. I am pleased to note too that Ms. Helen Sharman of the United Kingdom has just returned safely from a short visit to the Soviet Mir space station. As all are aware, the next visit will be by an Austrian "Euronaut" or "Austronaut".

16. The United States, in cooperation with Canada, Japan and the European Space Agency (ESA), has continued work on the development of the international space station Freedom. In addition it has cooperated with, or launched satellites for, Germany, India, the United Kingdom, Indonesia, INMARSAT and INTELSAT.

17. There has also been progress through international cooperation in the International Geosphere-Biosphere Programme. Many countries have joined in the international effort in this field, which is of fundamental importance for examining the future habitability of our planet and for managing the common natural resources of the Earth.

18. There has also been an increase in international cooperation in the field of planetary exploration, some example of which I have already mentioned such as the Magellan spacecraft orbiting Venus, the Galileo spacecraft on a complex trajectory to Jupiter, and Ulysses. Similarly, the use of spacecraft for making astronomical observations from above the atmosphere has greatly advanced our knowledge of the universe by allowing observations in all regions of the electromagnetic spectrum. With the launching of the Hubble Space Telescope, the Gamma Ray Observatory, the Rosat X-ray observatory and the Gamma-1 and Granat astrophysical observatories, astronomers now have a powerful array of tools for their investigation of the universe. I am pleased to note that these and other projects that are now being planned are open to broad international cooperation.

19. The launching of the Soviet Union's Almaz radar satellite on 31 March this year provides scientists and others with new means for examining the Earth, adding to a growing international capability for managing natural resources and monitoring the environment.

20. Ending a five and a half year period during which no spacewalks were performed by NASA crew members the crew of the space shuttle Atlantis, which was launched on 5 April this year, performed exercises which provided valuable data for developing the space station Freedom and repaired and deployed the Gamma Ray Observatory. The launching of the space shuttle Discovery on 28 April this year, 10 years after the launching of the first space shuttle on 12 April 1981, marked the beginning of the second decade of operation of this reusable space transportation system.

21. Let me now draw attention to the agenda items that are before this Committee for consideration during the next two weeks here at Graz.

22. As members will recall, the General Assembly at its forty-fifth session, as in past years, instructed the Committee to consider as a matter of priority "Ways and means of maintaining outer space for peaceful purposes" and to

report thereon to the Assembly at its forty-sixth session. The Committee, as members will recall, has continued to make very serious efforts to reach a broad consensus on this item. I am certain that at the current session the Committee will spare no effort in this regard, and that the Committee's efforts to expand the common ground on this question of admitted difficulty will be just as strenuous.

23. Before going into the details of the work of the two Subcommittees, let me once again express our appreciation for the excellent work of the two Subcommittee Chairmen: Professor John Carver of Australia who, I understand, will be with us later at Graz, Chairman of the Scientific and Technical Subcommittee; and Mr. Vaclav Mikulka of Czechoslovakia, Chairman of the Legal Subcommittee. We are deeply indebted to the Subcommittee Chairmen for the smooth and productive functioning of those two subsidiary bodies.

24. So far as the report of the Scientific and Technical Subcommittee is concerned, the Subcommittee has as in the past considered on a priority basis the United Nations Programme on Space Applications, the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82) and matters relating to the remote sensing of the Earth by satellites and to the use of nuclear power sources in outer space. It also considered questions relating to space transportation systems and their implications for future activities in space, examination of the physical nature and technical attributes of the geostationary orbit, matters relating to life sciences, including space medicine, planetary exploration and astronomy as well as progress in national and international space activities related to the Earth's environment, in particular progress in the Geosphere-Biosphere Programme.

25. As the expansion and orientation of the United Nations Programme on Space Applications is and remains an integral part of the implementation of the recommendations of UNISPACE 82, the Subcommittee continued the practice of considering jointly the two items dealing with the Programme on Space Applications and the implementation of the recommendations of UNISPACE 82. In considering those agenda items the Subcommittee remained cognizant of the position of the General Assembly, which at its forty-fifth session again emphasized the urgency and importance of fully implementing the recommendations of the Conference, held almost a decade ago. One can fully understand the sense of urgency expressed by the Assembly. Once more, the Assembly identified four urgent questions to be considered by the Committee.

26. Thus, in accordance with General Assembly resolution 45/72, the Subcommittee convened for the fifth time the Working Group of the Whole to Evaluate the Implementation of the Recommendations of UNISPACE 82; the report of the Working Group is contained in annex II of the Subcommittee's report.

27. Let me congratulate Mr. Muhammad Nasim Shah of Pakistan, who in chairing the Working Group for the first time has maintained the tradition of cooperation and efficiency established by his predecessor, Mr. Raimundo González of Chile.

28. The Working Group of the Whole, in reviewing its mandate and the status of the implementation of the UNISPACE 82 recommendations, has called attention again to some of the recommendations it made in previous reports. Among other

things, the Working Group reiterated its recommendation to the Committee that it request all States, particularly those with major space or space-related capabilities, as well as international organizations with space-related activities, to continue to inform the Secretary-General annually as appropriate about those space activities that were or could be the subject of greater international cooperation, with particular emphasis on the needs of developing countries.

29. Also, by noting with appreciation the reports prepared by the Secretariat and the other steps being undertaken by Member States and international organizations in implementation of the UNISPACE 82 recommendations, the Working Group recalled paragraph 8 (c) of General Assembly resolution 45/72 and again recommended that the United Nations continue to lead - not just follow - the international effort to establish regional centres for space science and technology education in existing national and regional educational institutions in developing countries. In its discussion of regional and interregional mechanisms of cooperation, the Subcommittee, it should be noted, also urged Member States to support the development of such regional centres and requested the Outer Space Affairs Division to make every possible effort to obtain the support of other relevant international organizations, keeping it informed of further developments on these matters.

30. Another noteworthy proposal of the Working Group of the Whole, to which I should like to draw the attention of the Committee, is its intention to make at its next session a comprehensive assessment of the implementation of the recommendations of UNISPACE 82. It has thus requested the Secretariat to prepare, taking into account previous reports, a background paper to assist it in this regard. Such an assessment would, I believe, be extremely relevant and timely, especially when it is borne in mind that next year will be the International Space Year, coinciding with the tenth anniversary of the holding of the UNISPACE 82 conference. It is therefore fitting that a balance sheet be established showing the extent to which the international space community, countries members of this Committee and others have responded to the important recommendations of UNISPACE 82.

31. Those are just a few of the proposals and recommendations contained in the Working Group's report. The Working Group has continued to spare no effort in its quest to strengthen the basis for further progress in the implementation of the recommendations of UNISPACE 82. But as I have said repeatedly and as I want to say again - and as my successor will certainly say as well - these efforts can bear fruit only if, when the information requested is received, it is carefully evaluated, since sound analysis is necessary if substantive conclusions are to be drawn.

32. The Scientific and Technical Subcommittee also reviewed the wide range of activities of the Programme on Space Applications, and commended the work carried out during the past year. It also reviewed progress on the 1991 activities and approved the proposed programme for 1992.

33. Since its previous session, additional voluntary contributions had been offered by various member States and organizations to support the Programme on Space Applications. The Subcommittee noted this with appreciation. It felt constrained, however, once again to express concern over the limited financial resources available for carrying out a programme of great importance for many

member countries. It appealed to Member States for their support through voluntary contributions to the Programme. Over the years I have added my voice to those who have expressed similar concerns, and I should like to do so once again by reminding Member States and perhaps even non-member States of the growing importance of space science and technology for social and economic development. The Subcommittee's appeal therefore deserves attention and serious consideration by the United Nations family, and in particular strong support by members of this Committee.

34. In discussing remote sensing of the Earth by satellite, the Subcommittee once more emphasized the importance of making remote sensing data and analysed information available to all countries at reasonable cost and in a timely manner. It also reiterated its view that remote sensing activities should take into account the need to provide appropriate and non-discriminatory assistance to meet the needs of developing countries. I need not dwell on this question since I have repeatedly stated my views on the importance of international cooperation, particularly in the field of remote sensing of the Earth.

35. I must also note my concern about the direction taken in the Subcommittee's debate on the simple question of nuclear power sources in outer space. While there seemed to be some understanding of the desire for the Subcommittee to ensure the technical accuracy of its recommendations, it is also important that the work of the Committee and its Subcommittee - and I say this with all seriousness - move forward and not backward. I hope that it will not be necessary for the Scientific and Technical Subcommittee to re-embark on prolonged negotiations. It is my fear that the work which has been meticulously done over many years in the Working Group on Nuclear Power Sources as well as in the two Subcommittees and in the Committee itself will come to nothing if we do not consistently build upon agreements which have been laboriously reached with a great deal of compromise by many delegations.

36. While the Working Group on Nuclear Power Sources did not meet formally at the session, the Subcommittee has recommended that the item be retained on a priority basis in its agenda for the next session and that the question of reconvening the Working Group be considered by this Committee at its current session in the light of the work carried out by the Legal Subcommittee on the subject at its thirtieth session.

37. On the question of space transportation systems, the Subcommittee reviewed national and cooperative programmes and continued to stress the importance of international cooperation for providing all countries with access to the benefits of space science and technology. Similarly, under the item concerning the physical nature and technical attributes of the geostationary orbit as well as space communications, the Subcommittee took note of the various current and planned programmes of Member States and international organizations. However, there is little that I can report in the way of progress in this area. The Subcommittee will continue to consider the item.

38. On the scientific matters relating to life sciences, including space medicine, the Geosphere-Biosphere (global change) Programme, planetery exploration and astronomy, the Subcommittee heard special presentations by experts from various countries and international organizations. The somewhat

lengthy official theme for the 1991 session was "Applications of airborne and satellite remote sensing for prospecting mineral and groundwater resources and for monitoring and managing biological resources, with emphasis on agriculture, taking into particular account the needs of developing countries". The importance to the human race of continued research and exploration in these vital areas cannot be overstated, especially if projects in all those areas are open to broad international cooperation. The Subcommittee has therefore recommended that these items be retained on the agenda of its next session. This is also the occasion to express once more the Committee's and my own thanks to the Committee on Space Research (COSPAR) and the International Astronautical Federation (IAF) for their very instructive symposium on the 1991 theme.

39. The theme fixed for special attention at the 1992 session of the Subcommittee is "Space technology and the protection of the Earth's environment: development of endogenous capabilities, in particular in the developing countries and in the context of International Space Year". The Subcommittee has recommended that COSPAR and IAF, in liaison with Member States, be invited once again to arrange a symposium on the theme, with as wide a participation as possible. The Subcommittee has also recommended that special presentations to be made in conjunction with its session should be planned by Member States in the light of the relevance of the technical presentations to the Subcommittee's work and of their contribution to the Subcommittee's substantive consideration of items on the agenda. I hope the Committee will have no difficulty in endorsing those recommendations.

40. While International Space Year and space and Earth environment are not items on the Subcommittee's formal agenda, the Subcommittee has devoted a fair amount of time to these two questions, and I should like to make a few comments. As I noted in my statement last year, an important element of the work of the Committee and the United Nations for this year and next year will be International Space Year. I stressed then, as I should like to do now, the General Assembly's endorsement of the Committee's recommendation that international cooperation should be promoted through the Year and should be carried out for the benefit and in the interest of all States, taking into particular account the needs of developing countries.

41. At its recent session the Subcommittee again urged member States and international organizations to consider supporting additional scientific and technical activities in cooperation with the United Nations as part of International Space Year and reminded them that it was particularly important that voluntary contributions be increased, since all such activities were to be carried out without any impact on the regular budget of the United Nations or the existing programme of work of the Programme on Space Applications. Sufficient financial resources are therefore absolutely essential if the goals are to be accomplished.

42. I therefore urge members to give serious consideration to the note verbale which the Secretary-General has sent to Member States inviting not only additional proposals but voluntary contributions as well in support of United Nations activities for International Space Year.

43. As members will recall, the General Assembly has also endorsed the Subcommittee's recommendation that in planning their activities Member States

should consider ways in which those activities could complement the efforts under way for the United Nations Conference on Environment and Development, also planned for 1992. We are becoming more and more aware of the threats posed to the environment by human activities, and I for one am very pleased that the major focus of the activities of the International Space Year will be on the use of space technology for studying and monitoring the environment. Yet I cannot fail to echo the concern expressed in the Subcommittee that even as we seek to study and monitor the environment the amount of space debris continues to grow. I think there is general agreement that sooner or later this question has to be addressed at the international level. The General Assembly has already recognized this by noting, in its resolution 45/72, that space debris could be an appropriate subject for discussion by this Committee in the future. I hope the Committee will make some progress towards reaching agreement on how to deal with this pressing problem.

44. Now a few words on the thirtieth session of the Legal Subcommittee. The Legal Subcommittee has re-established its Working Group on the use of nuclear power sources in outer space, ably chaired by Mr. Hans Winkler of Austria, in order to continue its consideration of the elaboration of draft principles relevant to the use of nuclear power sources in outer space. It was hoped that with the consensus reached in 1990 on draft principle 3 the Working Group at this session of the Legal Subcommittee could have turned its attention to the remaining draft principles and arrived at a consensus on a complete set of draft principles on nuclear power sources. With some reluctance I have to report that this was not the case. Unfortunately, as reflected in the Working Group's report, there was little progress towards consensus on a complete set of principles. After the real progress of the last few years and the expectations that had been raised, the lack of progress this year was deeply disappointing.

45. I think we all understand that no set of principles is going to be ideal from the point of view of all delegations. The progress that has been made on the agreed draft principles therefore represents compromise by all delegations. But if each delegation insists on a text that exactly meets its wishes there will never be agreement. I therefore strongly appeal to all delegations to find a way to move forward on the basis of past negotiations and agreements, bearing in mind that the draft principles provide for review and, if necessary, revision in the future.

46. Concerning the definition and delimitation of outer space and the question of the geostationary orbit, the Working Group on agenda item 4 reconvened under the chairmanship of Mr. Estanislao Zawels of Argentina and, as it has done previously, divided its consideration of the item into two parts. Again deadlock arose between those delegations that considered that the definition and delimitation of airspace and outer space was a practical and legal necessity and other delegations that maintained that there was no need to establish a juridical boundary between airspace and outer space. I would note here that there was a proposal to begin an exchange of views in the Working Group concerning aerospace vehicles as a way of focusing the discussion on practical issues.

47. Concerning the newest agenda item, on outer space benefits, I am pleased to note that the Working Group on the question has begun its work under the experienced guidance of Mr. Raimundo González of Chile. While little

substantive progress was made on the question, a variety of views was expressed and towards the end of the Working Group's session a working paper was submitted by a number of countries of the Group of 77. I hope that those views will provide the basis for more substantive discussions at next year's session. I would also note that the Working Group is still considering how best to approach this item, and delegations may wish to submit other proposals for consideration. The ideas and views expressed in the Working Group are contained in annex III of the Subcommittee's report.

48. This brief résumé of the reports of the two Subcommittees should give us much food for thought and much new impetus for action. I hope that during the current session of this Committee we will be able to have substantive and productive discussions on the various agenda items so that at the end the Committee will be in a position to provide guidance to the Subcommittees in order to promote progress in their work.

49. With regard to the Committee's other agenda items, we have dealt at some length upon the implementation of the recommendations of UNISPACE 82 in the context of the Scientific and Technical Subcommittee, and these two items will be considered jointly as usual. On the item concerning spin-off benefits, the Committee has before it a study prepared at the Committee's request by the Outer Space Affairs Division. This is an important item, and we ought to make sure we give it adequate attention in our debate.

50. That brings me to the conclusion of my review of the activities of the past year and the work before the Committee.

51. Let me note that space activities and international cooperation in space have changed dramatically since I became Chairman in 1972. During the past two decades, as I said earlier, the Committee has played an important role in establishing the general framework for international cooperation. It has expanded its membership and its scope, focusing its work as required by the evolution of space science, technology and applications.

52. I would say that one major change over the period has been the growing importance of space activities for economic, social and cultural development, and hence the increasing interest by many nations, particularly developing countries, in space activities. The work of the United Nations in ensuring that all countries have practical access to the benefits of space activities was just beginning in 1972 and is now the major focus of our work.

53. The growing importance of space activities and the growing number of countries concerned have of course sometimes made the Committee's work more difficult. Consensus may now be harder to reach. But in general I think the Committee has retained its admirable ability to come to consensus and to work in a spirit of compromise and cooperation.

54. As the moment approaches of my leaving the chairmanship of this Committee and handing it over to my successor - whom I trust the Committee will elect in a few minutes - I should like to conclude by extending my thanks not only to all delegations that over the years have provided so much support and inspiration, but also to the members of the particularly qualified and hard-working Secretariat. In the course of nearly 20 years at the head of this Committee, I have been privileged to work with more than one Director of

the Outer Space Affairs Division. All of them have left their mark on the annals of the Committee, beginning with Mr. Abdelghani of Egypt, moving on to Mr. Perek and Mr. Kopal of what is now called the Czech and Slovak Republic, then Mr. Robinson of the United States, and today our indefatigable and always resourceful Mr. Jasentuliyana - Nandi, as he is affectionately known by many in this Committee.

55. I have been privileged to work over the years with a number of exceptionally gifted and dedicated Vice-Chairmen proposed by our member country Romania and with an equally gifted and even more hard-working number of Rapporteurs proposed by Brazil. These Vice-Chairmen and Rapporteurs alike have given the best of their diplomatic talents in leading important areas of work in the Committee, in drafting conventions and draft principles, in preparing UNISPACE 82, and in masterminding other important activities of the Committee. I have also been privileged to work with many distinguished space experts, of whom the latest, Mr. Abiodun, has rendered particularly invaluable service to the Committee and its outer space programme.

56. At the moment of my leaving the chairmanship of the Committee, I should also like to express my confidence in the future of the Committee and particularly in the future of international cooperation for the peaceful uses of outer space. In this context I wish to present a final thought which occurs to me when I consider that, in my 20 years as Chairman of this Committee, I have witnessed the development of many forms of space exploration, uses and applications. I have always been struck - and I have perhaps been too discreet about it previously - by an apparent paradox: on the one hand, the wealth of the means of national space exploration efforts; and, on the other, the relative weakness of the international instruments created to provide the legal and political framework for the safe development of the same activities. Thus, over 35 years of organized space activities of national and international characters - activities that have fundamentally changed humanity's presence in space and have seen the appearance of a whole new culture and civilization of space technologies and space objects with multiple functions - over all these years that have brought a wealth of new wisdom to the Earth, the instruments for international cooperation in outer space have remained virtually the same. The structures, and competencies and resources, of our Committee have remained virtually unchanged as have the composition and powers of the Outer Space Affairs Division in the United Nations Secretariat.

57. My question, therefore, is whether the time has not come for a strengthening of these structures and whether the time might not be ripe perhaps to begin considering the creation of the foundations of new institutional frameworks, not excluding the creation some time in the future of an international space organization that will respond to many of the new requirements in space cooperation and development.

58. Finally, before leaving the chairmanship, I express the hope that members will manage in their work together to keep and develop what has perhaps been the most precious asset in our hands, an asset which the Committee has worked and sometimes suffered for, but also often fought for: the maintenance, not predominantly but exclusively, of outer space for peaceful purposes for the benefit of all mankind.

ANNEX IV

Report of the Legal Subcommittee on the work of its thirtieth session

The elaboration of draft principles relevant to the use of nuclear power sources in outer space, with the aim of finalizing the draft set of principles: working paper submitted by Canada and Germany under agenda item 8*

The following is the tenth revision of the draft principles contained in working paper A/AC.105/C.2/L.154 of 25 March 1986 and reflects discussions held at the thirty-fourth session of the Committee on the Peaceful Uses of Outer Space. This revision is the result of close consultations with interested delegations and reflects as well what these and many other delegations consider to be a solid basis for further consensus to be reached at the next session of the Legal Subcommittee.

Principles 1, 3, 5, 6, 7, 8, 9 and 10 have been agreed to by the Committee. It was also agreed by the Committee that principle 11 be deleted.

Principle 1A: Use of terms

1. For the purpose of principles 3, 4, 5 and 7 of these principles, the terms "launching State" or "State launching" mean the State on whose registry a space object is carried in accordance with the Convention on Registration of Objects Launched into Outer Space, and which shall retain jurisdiction and control over such an object according to article VIII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. If the object is not registered in accordance with the above-mentioned Convention, the terms "launching State" or "State launching" mean the State which exercises jurisdiction and control over such space object.

2. For the purpose of principle 9, the definition of the term "launching State" as contained in that principle is applicable.

Principle 4: Safety assessment

1. A State launching a space object with a nuclear power source on board shall conduct in cooperation, where relevant, with those which have designed or constructed the NPS or will operate the space object with the nuclear power source on board a thorough and comprehensive safety assessment prior to each launch. This assessment shall cover as well all relevant phases of the mission and shall deal with all systems involved, including, for example, the means of launching, the space platform, the nuclear power source and its equipment, and the means of control and communication between ground and space.

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* Previously circulated as document A/AC.105/C.2/L.154/Rev.10.

2. This assessment shall respect the guidelines and criteria for safe use contained in principle 3.

3. Pursuant to article XI of the Outer Space Treaty, the results of this safety assessment shall be made publicly available prior to each launch, and the Secretary-General of the United Nations shall be informed on how States may obtain such results of the safety assessment as soon as possible prior to each launch.

Principle 12: Revision

These principles shall be reviewed by the Committee on the Peaceful Uses of Outer Space no later than 10 years after their adoption.

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